

AMENDMENTS TO THE CLAIMS

1. (Previously Amended) A method to forward network data in a data processing system, comprising:
  - (a) receiving network data;
  - (b) separating the network data into portions which will be modified and into portions which will not be modified;
  - (c) storing both portions of the network packet in a local memory;
  - (d) forwarding the modifiable portions of the network data to a cache associated with a processing element requesting at least the modifiable portion of the data;
  - (e) determining a next processing element destination of the network data;
  - (f) transferring the portion of the network data that are not modified to a next memory subsystem of the next processing element destination;
  - (g) modifying the modifiable portions within the requesting processing element;
  - (h) writing back the modified portion of the network data to the next processing element destination independently of transferring the nonmodifiable portion of the network data, and bypassing the local memory.

2. (Original) The method of claim 1, wherein the modifiable portion of the network data is a packet header of one network protocol which is modified to that of another network protocol.
3. (Currently Amended) The method of claim 2 wherein one ~~and/or another~~ network protocol is ATM.
4. (Currently Amended) The method of claims wherein one ~~and/or another~~ network protocol is ethernet.
5. (Currently Amended) The method of claim 2 wherein ~~one/and or another~~ one network protocol is PPP, point-to-point protocol.
6. (Currently Amended) The method of claims 2 wherein ~~one/and or another~~ one network protocol is IP, internet protocol.
7. (Previously Amended) The method of claim 2, further comprising:
  - (a) translating an address if the requesting processing element and the next processing element destination have different addresses of the local memory.

8. (Previously Amended) The method of claim 1, wherein the modification comprises updating an address to that of the next processing element destination.
9. (Original) The method of claim 1, wherein the modification occurs in a network processor.
10. (Original) The method of claim 1, wherein the modification occurs in a local processing element.
11. (Original) The method of claim 1, wherein the modification occurs in an embedded processor in an application specific integrated circuit, ASIC.
12. (Previously Amended) An apparatus for data communications, comprising:
  - (a) a network interface through which to receive incoming data comprised of at least one packet, the data packet having a modifiable portion and a portion that need not be modified;
  - (b) a local memory connected to the network interface, the local memory for receiving the data and storing the modifiable portion from the portion that need not be modified;

- (c) a bus interface connected to the local memory which forwards the portion of the data packet that need not be modified to an interconnect fabric, independent of the modifiable portion of the data packet, to a next processing element system;
  - (d) a modifier which updates the modifiable portion of the data packet and forwards the updated modifiable portion of the data packet to the bus interface that transfers the updated modifiable portion of the data packet to the interconnect fabric, independent of the portion of the data packet that need not be modified, to the next processing element system.
- 13. (Original) The apparatus of claim 12, wherein the incoming data is digital electrical and/or optical data.
- 14. (Original) The apparatus of claim 12, wherein the incoming data is analog electrical and/or optical data.
- 15. (Previously Amended) A memory bypass mechanism, comprising:
  - (a) means to receive optical and/or digital data;
  - (b) means to separate the received data into a modifiable portion and a non-modifiable portion;

- (c) means to store the received data in memory associated with a means to modify the modifiable portion of the received data;
  - (d) means to forward the modifiable portion of the data to the modifying means;
  - (e) means to forward the non-modifiable portion to a next memory of a destination means to receive the optical and/or digital data;
  - (f) means to modify the modifiable portion; and
  - (g) means to forward the modified portion of data directly to the next memory of the destination means bypassing storing the modified portion in the memory associated with a means to modify the modifiable portion of the received data.
16. (Original) The memory bypass mechanism of claim 15, wherein the modifiable portion of the received data is a header stating a network protocol of the data and/or a destination address of the received data.
17. (Original) The memory bypass mechanism of claim 16, wherein the received header is of a first network protocol and the modified header is a second network protocol.

18. (Original) The memory bypass mechanism of claim 17, wherein the first and second network protocols are selected from the group consisting of:  
asynchronous transfer mode, ethernet, Internet protocol, and Point-to-Point protocol.
19. (Original) The memory bypass mechanism of claim 15, wherein the modifying means is a processing element in a network processor.

Claims 20 and 21 (Cancelled)